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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,508	11/10/2001	John C. Tsai	60154.302001	3381
32112	7590	06/17/2005	EXAMINER	
INTELLECTUAL PROPERTY LAW OFFICE 1901 S. BASCOM AVENUE, SUITE 660 CAMPBELL, CA 95008			LYONS, MICHAEL A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/053,508

Applicant(s)

TSAI, JOHN C.

Examiner

Michael A. Lyons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-20 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 10 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

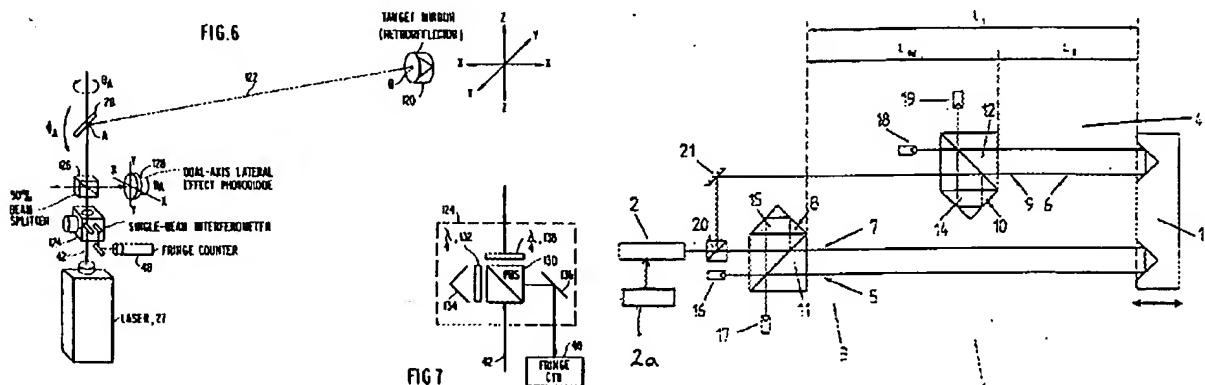
- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau et al (4,714,339) in view of Thiel et al (5,521,704).**



Regarding claims 1, 12, and 17, Lau (Fig. 6 and 7) discloses a measuring apparatus and corresponding method comprising laser 27 as a light source, and an optical channel including an interferometer 124, a target mirror 120, a beam splitter 126, a detector 128 for detecting a first portion generated by the beam splitter, with the interferometer receiving a second portion from the beam splitter that is combined with a reference beam generated in the beam splitter, and a fringe counter 48 as a receiver for the combined beam from the interferometer.

Lau, however, only discloses a single channel in the device.

Thiel (Fig. 1) discloses a measuring apparatus and corresponding method with a pair of optical channels 3 and 4 that allows for measurement of two locations on the test object.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second, identical channel to the device of Lau as per Thiel, as the second identical channel would allow for multiple measurements of multiple locations of the target object. Additionally, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

As for claim 2, Lau discloses laser 27.

As for claims 3 and 13, Thiel discloses the use of a beam splitter 20 and a bending mirror 21 to produce a light beam for the second optical channel.

As for claim 4, the combination of Lau and Thiel only discloses a single light source. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second light source to the device for the second channel, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

As for claims 5, 14, and 18, see Fig. 7 of Lau. Additionally, Fig. 3 of Lau shows that the beam splitter outside of the interferometer can be a polarizing beam splitter in conjunction with a quarter wave plate.

As for claim 6, target 120 of Lau and target 13 of Thiel are retroreflectors.

As for claims 7-8, detector 128 of Lau is a “dual-axis lateral effect photodiode” (Col. 8, line 65) and therefore is position sensitive.

As for claim 9, while counter 48 is not explicitly disclosed to be a photodiode, it would have been obvious to one of ordinary skill to make the counter a photodiode, as Official Notice is taken as to the well known use of photodiodes for fringe measurement and detection in an interferometer.

As for claims 10 and 15, Lau discloses computer 30.

As for claims 11, 16, and 19-20, the light source of Thiel is tunable, and therefore able to be modulated to produce a light beam with a modulation characteristic. Additionally, although the computer of Lau fails to explicitly disclose a phase sensitive detection, or a demodulator for demodulating a modulated signal, it would have been obvious to one of ordinary skill to make detection phase sensitive, as Official Notice is taken as to making demodulated measurements of a modulated signal and phase related measurements in interferometry, the motivation being that making a measurement on a demodulated signal produces a more accurate result, as any modification to the signal caused by the modulated beam has been removed, leaving a cleaner signal for measurement.

### ***Response to Arguments***

Applicant's arguments filed May 18, 2005 have been fully considered but they are not persuasive. The thrust of the applicant's arguments center around the fact that the combined device of Lau and Thiel as discussed above is in error because the combined device fails to disclose the multiple-axis (as argued, 5-axis) measurement of the instant invention. However, nowhere in the claim language is such a measurement disclosed. The claims are directed to a measuring apparatus and method, yet no specific type of measurement is claimed. Accordingly, since the claims are not directed to any sort of specific 5-axis measurement, the prior art of

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record reads on the claimed subject matter. Arguments as to how the specification or title of the application overcomes the prior art of record are moot, since only what is claimed is relevant.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the examiner relied on Thiel only for the dual channel measurement. The examiner disagrees with the applicant's assertion that the Thiel device is only a single channel; each path of the Thiel device has its own detector set. Light traveling through one beam splitter to its corresponding corner cube on the measurement device remains in that path; there is no mixing between light from the first corner cube and light from the second corner cube. As a result, the examiner holds that the Thiel device has two channels. This two-channel arrangement is the only teaching the examiner is taking from Thiel, and the combination stands, especially since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Finally, while the examiner appreciates the pointing out of the modulation disclosure overlooked in the Thiel reference, the Official Notice that was taken with regards to claims 11, 16, and 19-20 stands, particularly in light of US Pat. No. 3,738,754 to Marcy (Fig. 1 and relevant disclosure) in response to the challenge of support with adequate evidence as to the Official

Notice for these claims. It is noted that the Official Notice for claim 9 has not been challenged and therefore stands as prior art.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

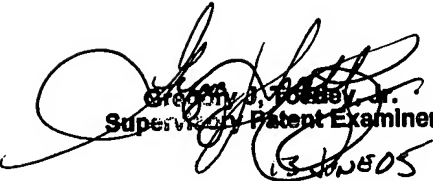
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL

June 1, 2005

  
Gregory J. Pottel  
Supervisory Patent Examiner

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